



OPEN FOR BUSINESS

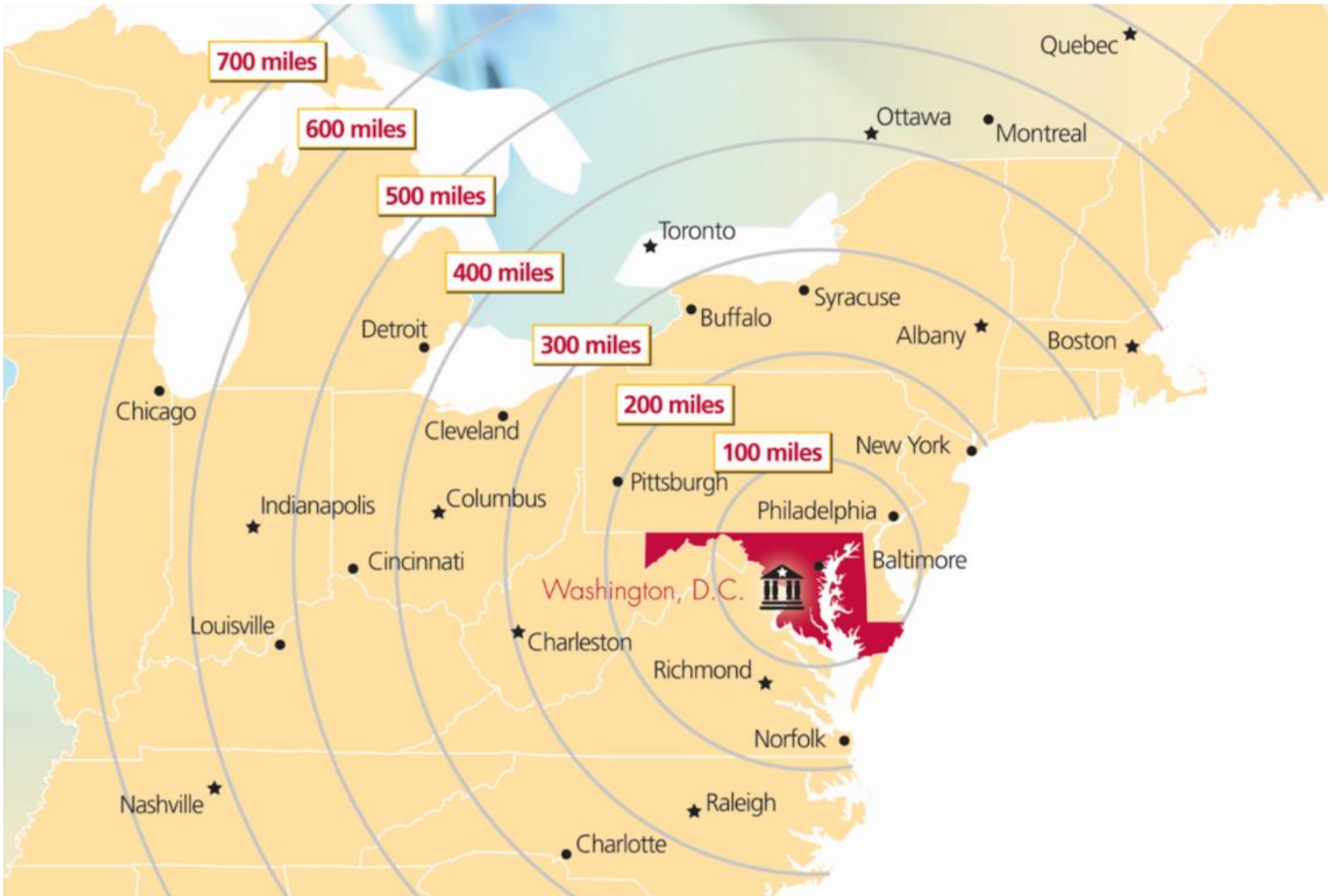
Maryland's Biotechnology Cluster

Ernesto Chanona, Ph.D.

Felicia Pullam

KAPAL 2020

Welcome!





Connection to
Maryland companies

Exchange of ideas with
Maryland researchers

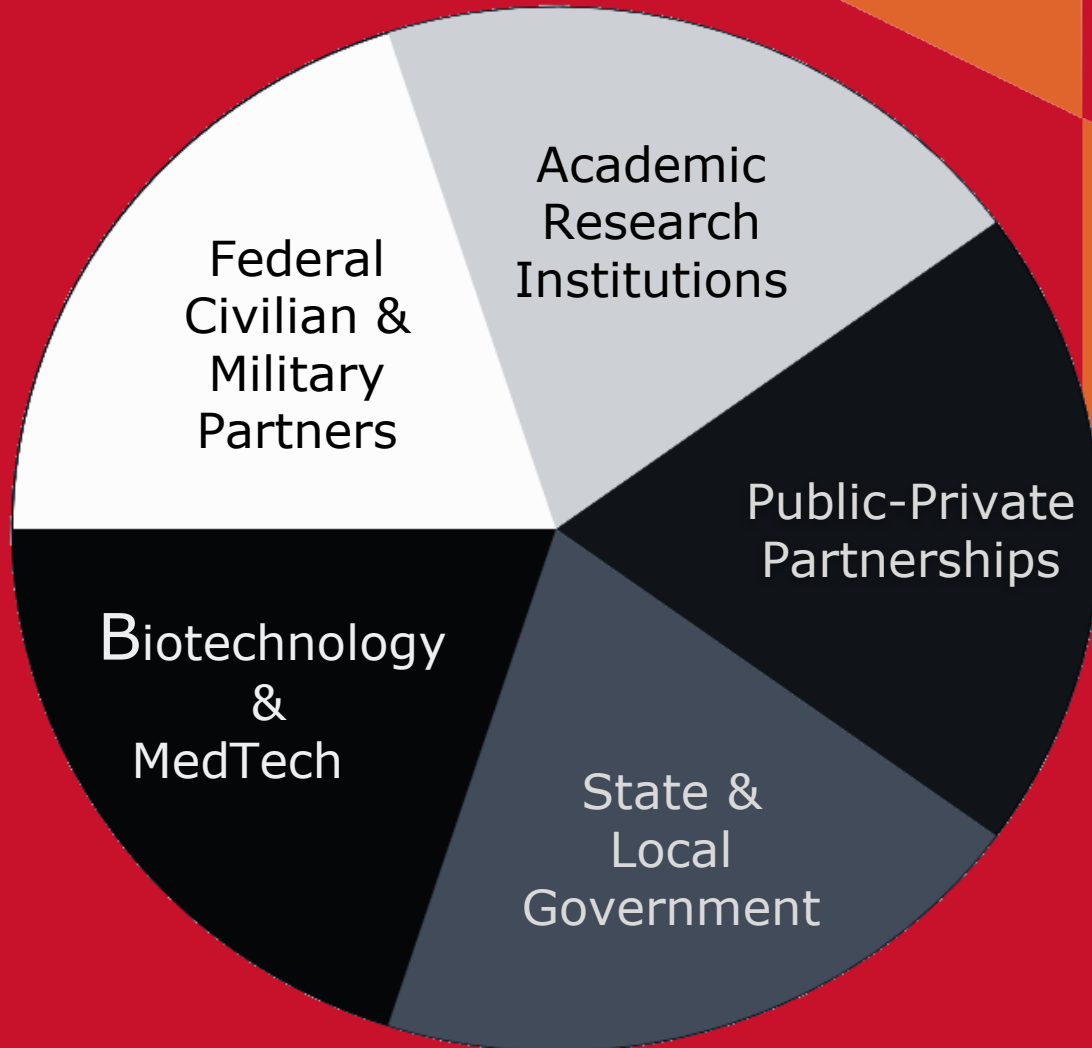
YOU

Maryland

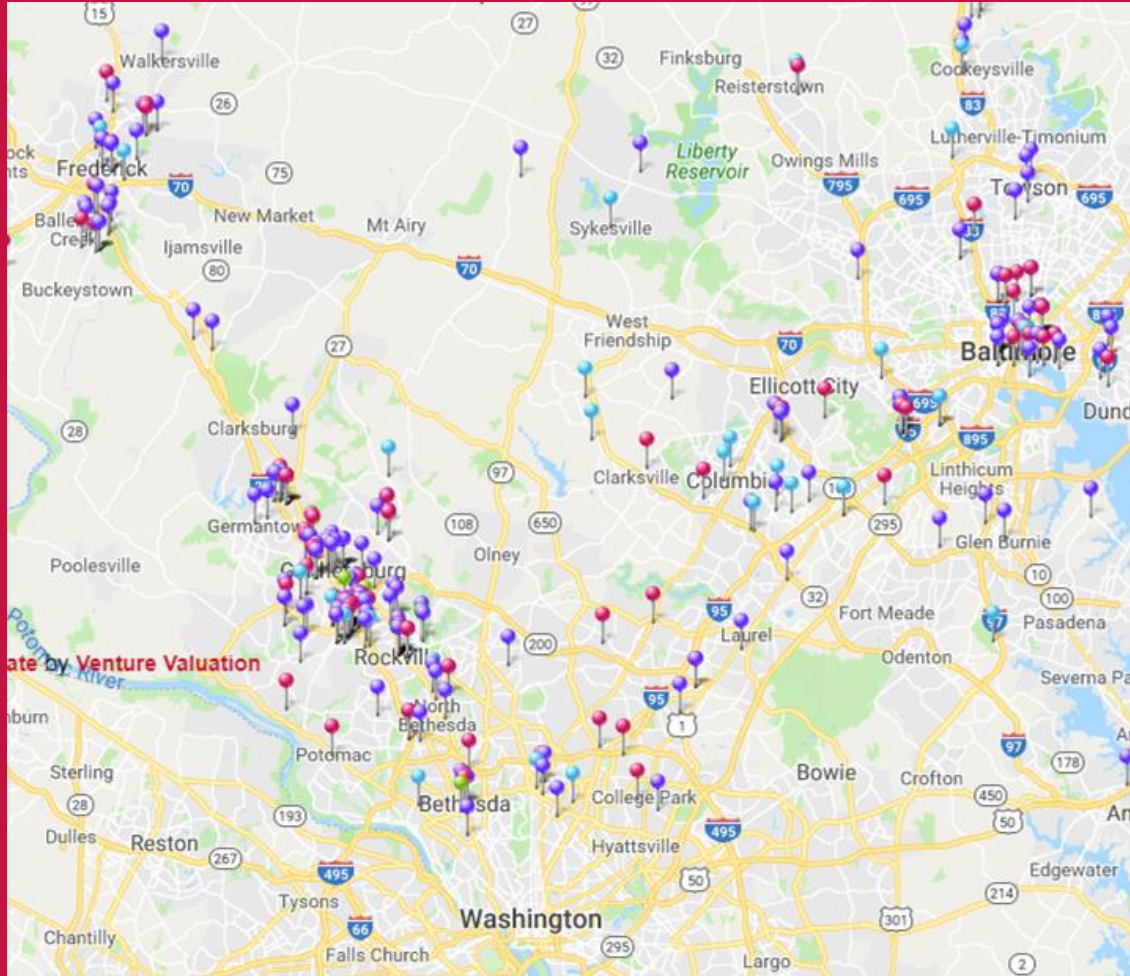


Base of operations in the United States

The BioHealth Industry



Industry Clusters



\$15.31B
in Economic
Activity

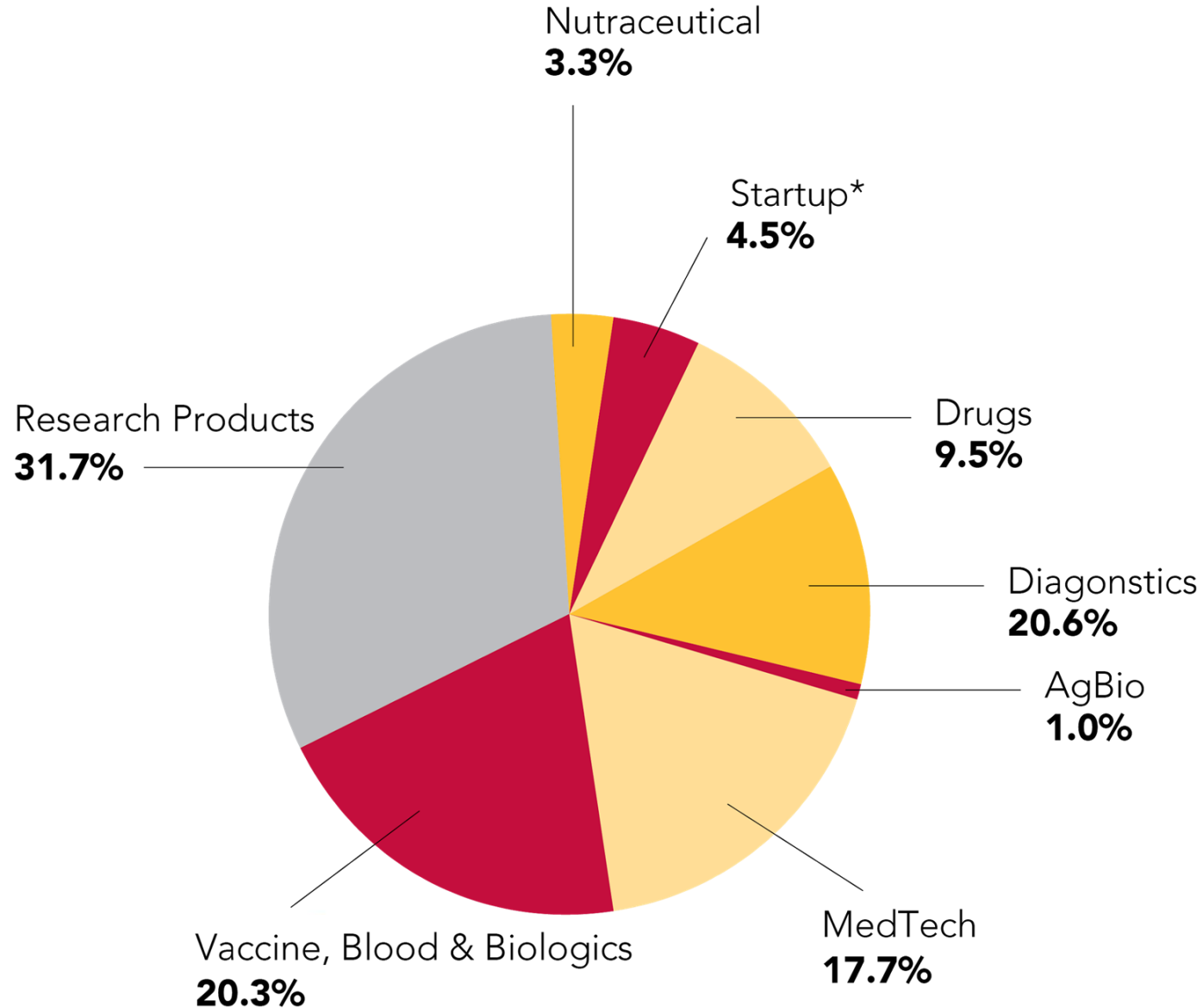
#1 % of professional
and technical
workers

#1 PhD concentration
in biological,
mathematical
and health fields

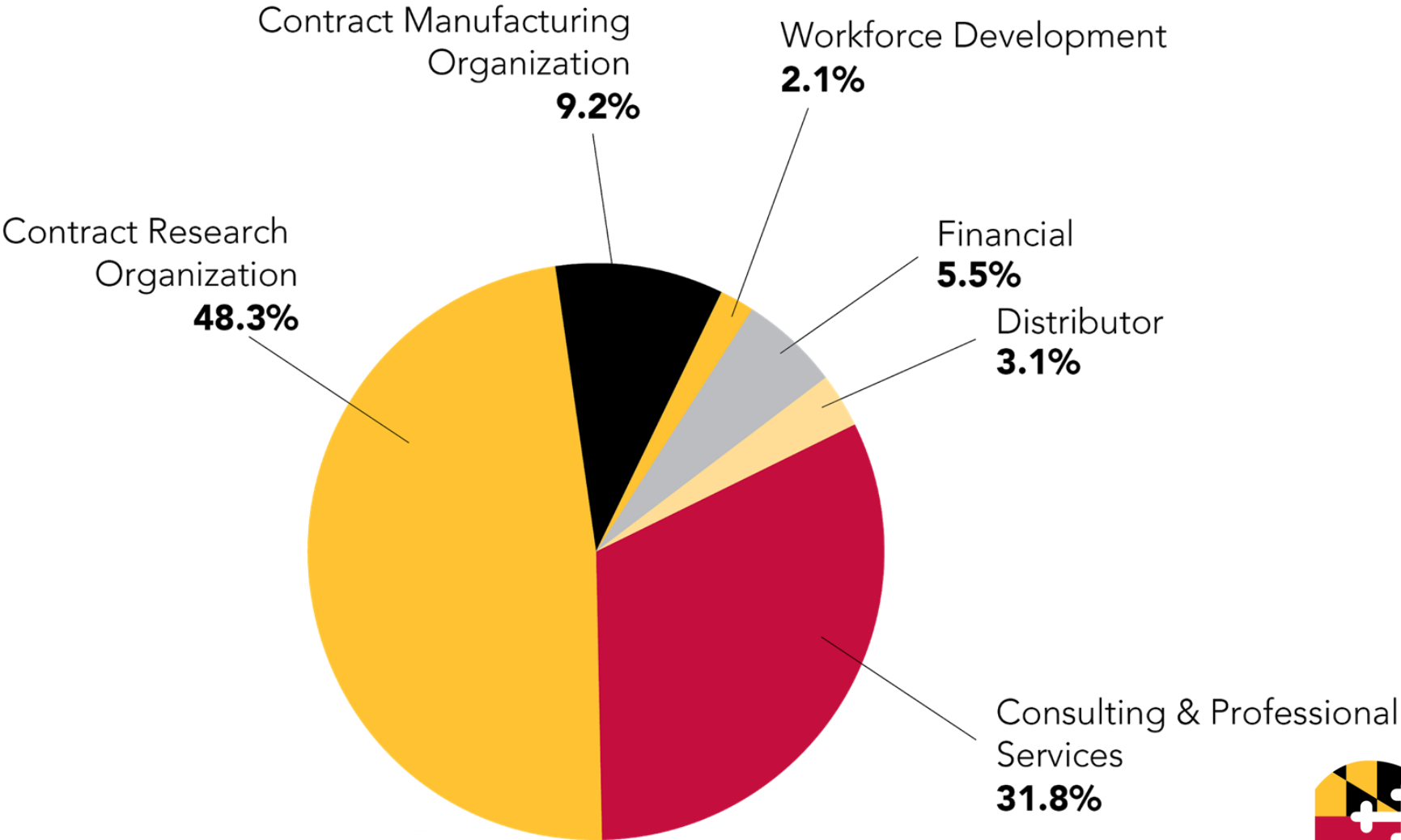
#1 concentration
of employed
doctoral scientists
and engineers

\$1.3B
in Federal
Procurement

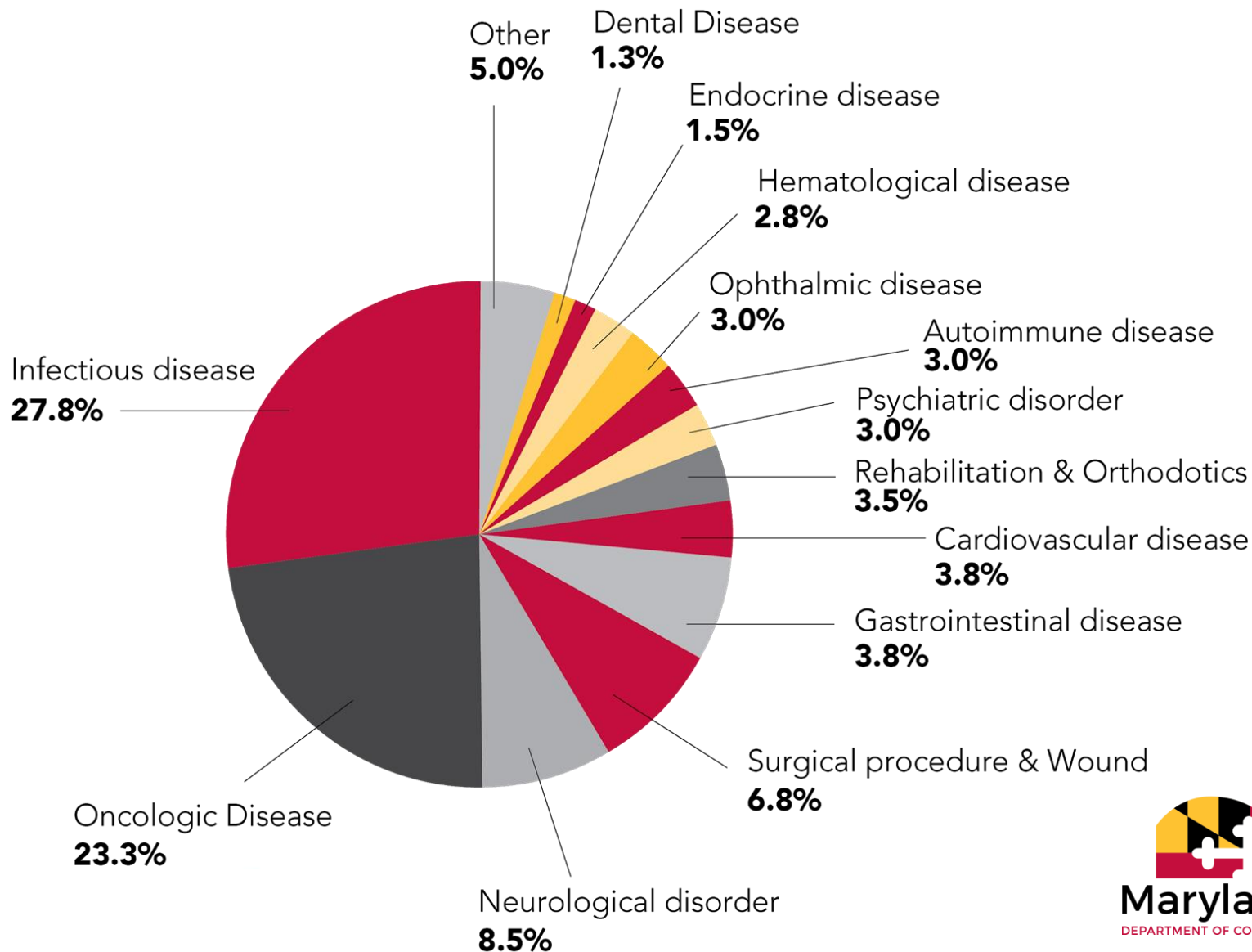
BioHealth Companies in Maryland



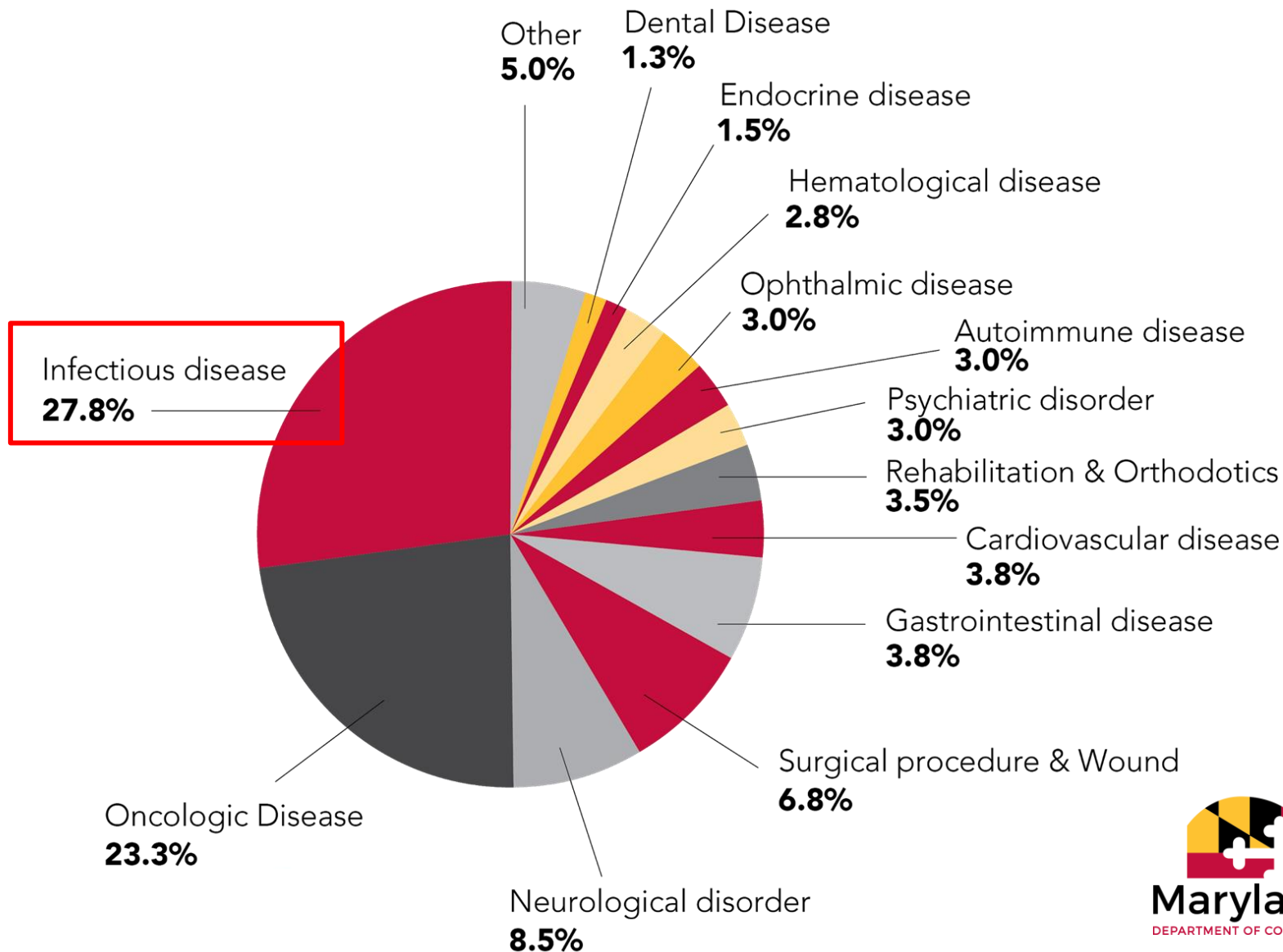
Service Companies in Maryland



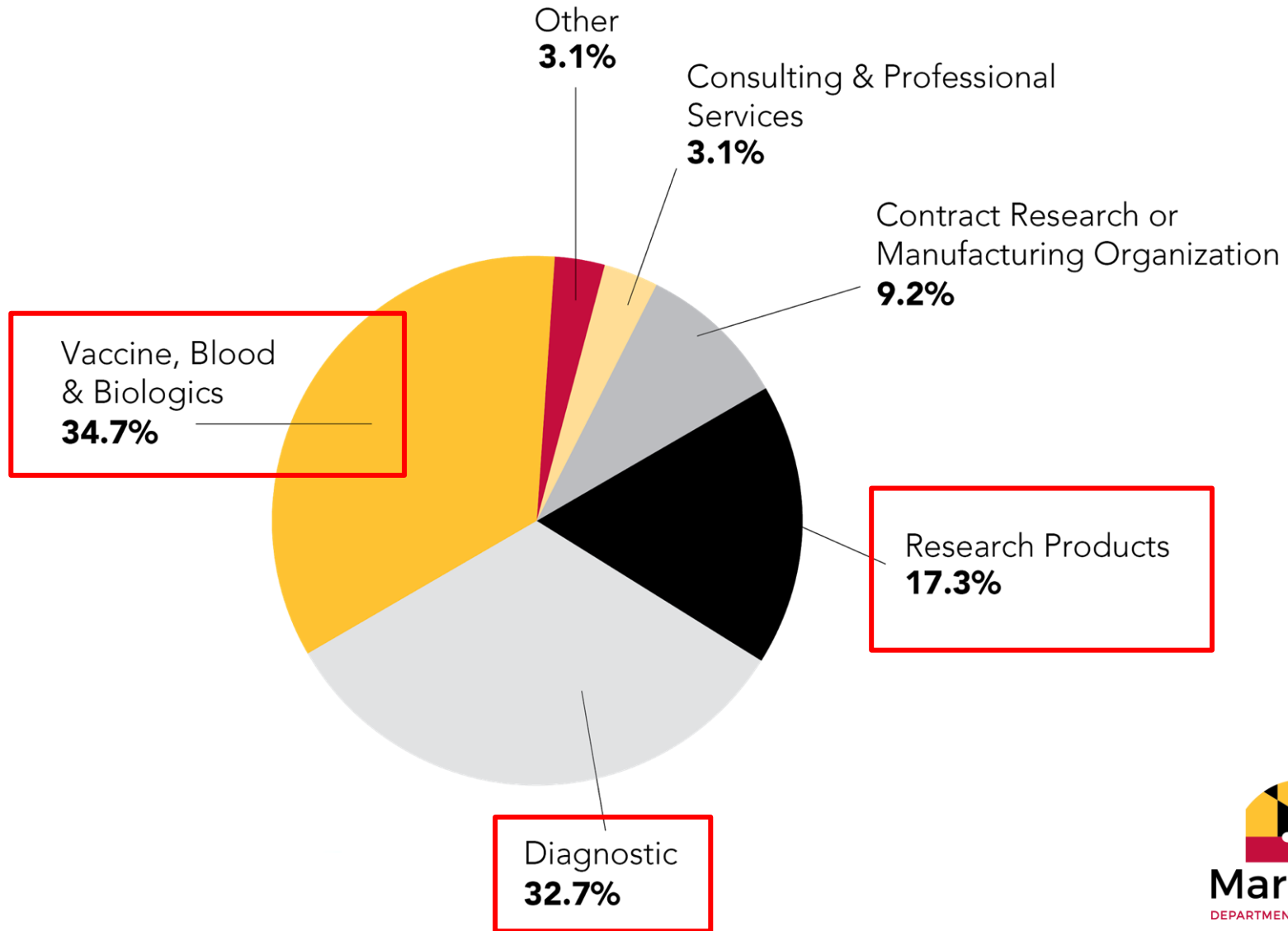
Therapeutic Areas of BioHealth Companies



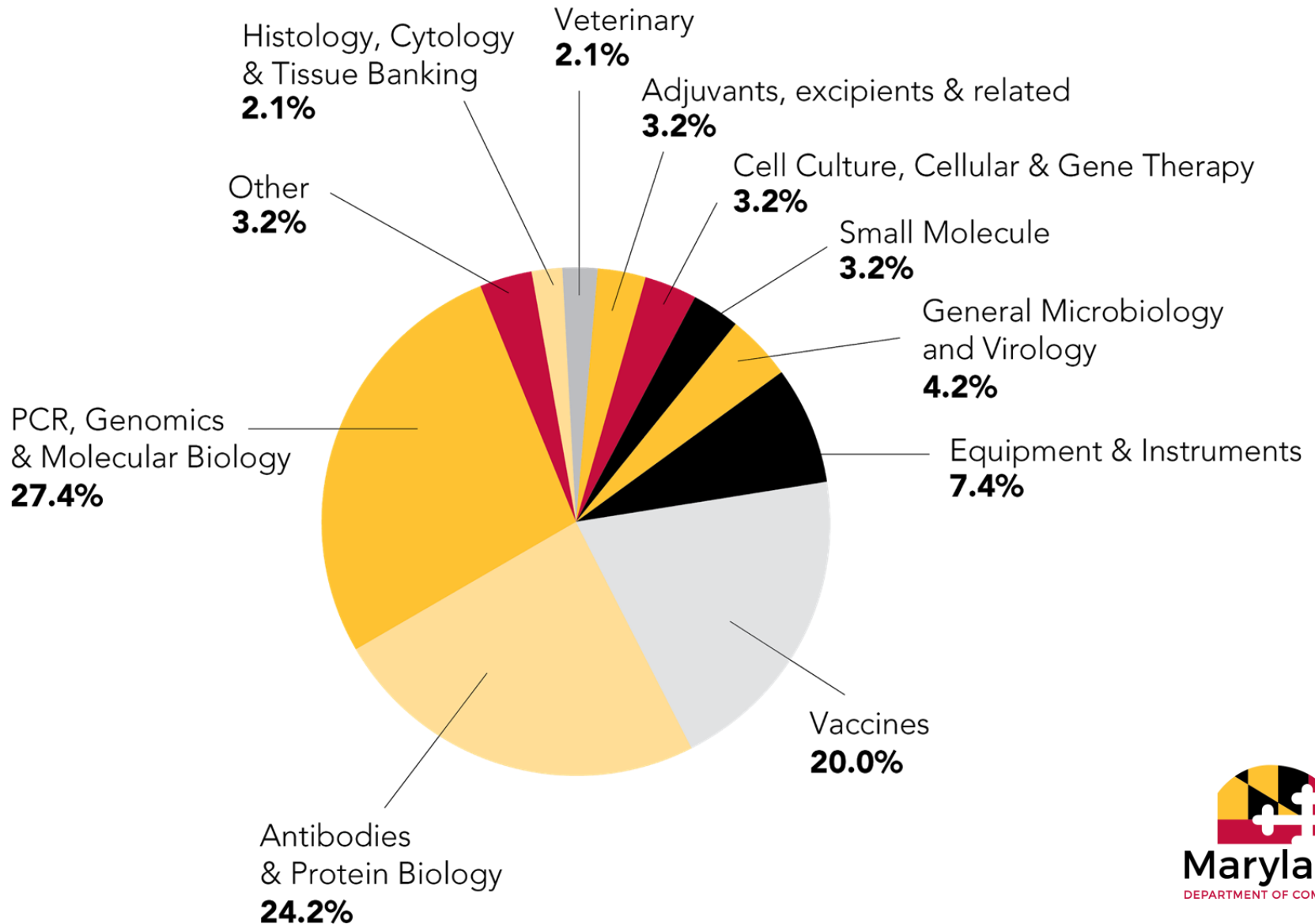
Therapeutic Areas of BioHealth Companies



Infectious disease companies in Maryland



Technology of Infectious Disease Companies



Cost of Living Index U.S. Metropolitan Areas 2017

(avg. for all urban areas = 100.0)

Baltimore, MD	117.0
Philadelphia, PA	117.2
Chicago, IL	123.6
Bergen-Passaic, NJ	125.8
Bethesda-Gaithersburg-Frederick MD	140.4
Alexandria, VA	144.3
San Diego, CA	146.1
Boston, MA	148.2
Washington, DC	155.7
San Francisco, CA	192.9
New York (Manhattan), NY	238.6

Source: C2ER Cost of Living Index, 2017 Annual Average Data



Affordable Living.



The Sinai Hospital
BioIncubator



Johns Hopkins University's
FASTFORWARD U
A Case Study in Comprehensive Support of Student Entrepreneurship

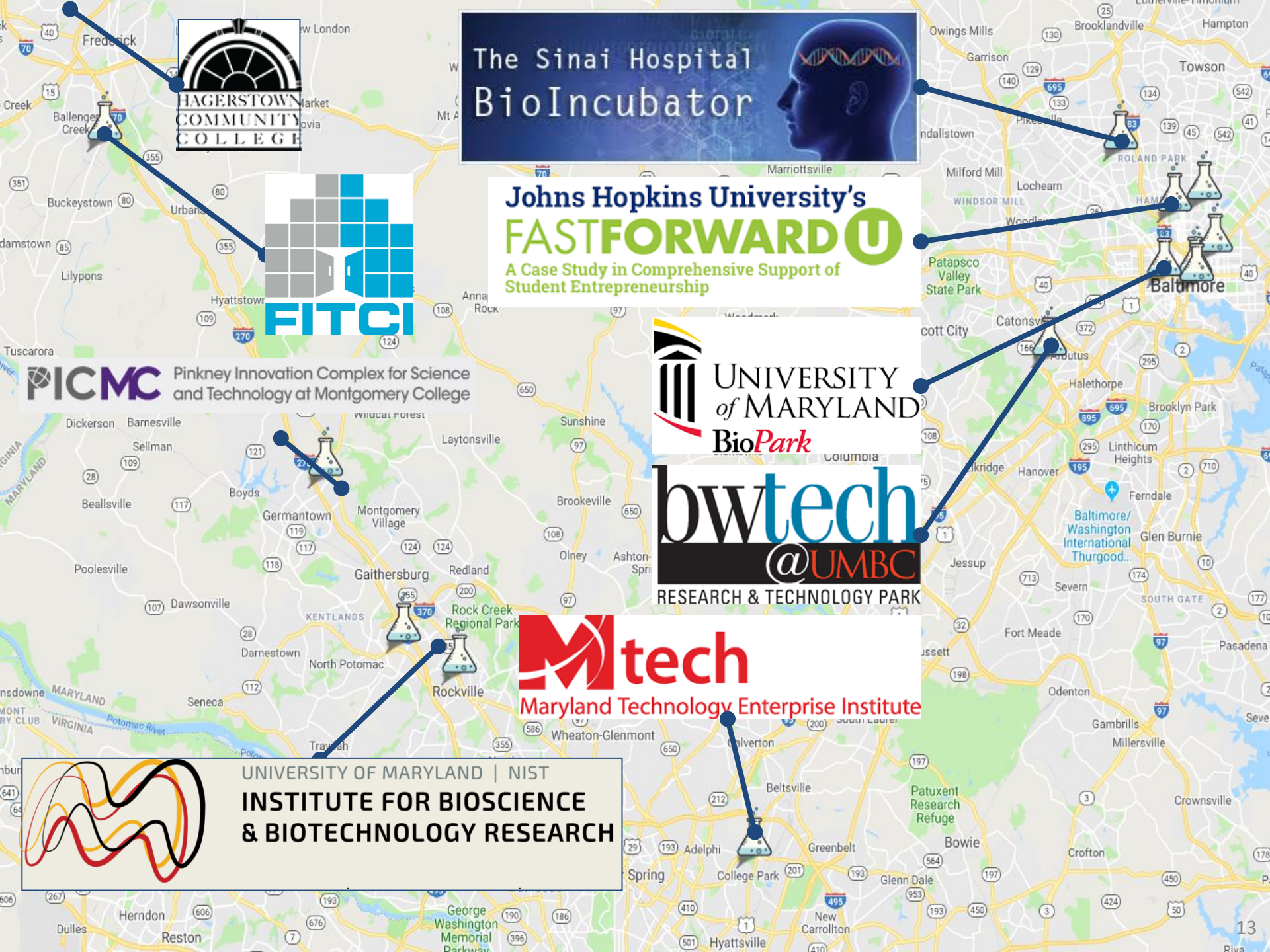
PICMC Pinkney Innovation Complex for Science and Technology at Montgomery College

UNIVERSITY of MARYLAND
BioPark

bwtech
@UMBC
RESEARCH & TECHNOLOGY PARK

Mtech
Maryland Technology Enterprise Institute

UNIVERSITY OF MARYLAND | NIST
INSTITUTE FOR BIOSCIENCE & BIOTECHNOLOGY RESEARCH





8 therapeutic clinical trials



Creating Tomorrow's Vaccines Today

Phase I : May 2020

Deployable Vaccine:
Summer 2021



Licensing agreement
for antiviral compounds



COVID-19 Vaccine
Phase I: Aug 2020



\$628MM for vaccine
manufacturing



JOHNS HOPKINS
MEDICINE

14 therapeutic
clinical trials



Vaccine R&D
produces adjuvant



Johns Hopkins University's
FASTFORWARD U
A Case Study in Comprehensive Support of Student Entrepreneurship

PICMC Pinkney Innovation Complex for Science and Technology at Montgomery College



Federal Partners



National Institute of Allergy and Infectious Diseases



National Heart Lung and Blood Institute

PUBLIC



Federal Government



Maryland

DEPARTMENT OF COMMERCE

State Government



County & City Government

Public-Private Partnerships



**MARYLAND
TECH COUNCIL**



BioHealth Innovation



LEADING INNOVATION TO MARKET

PRIVATE



Venture Capital



Non-profits

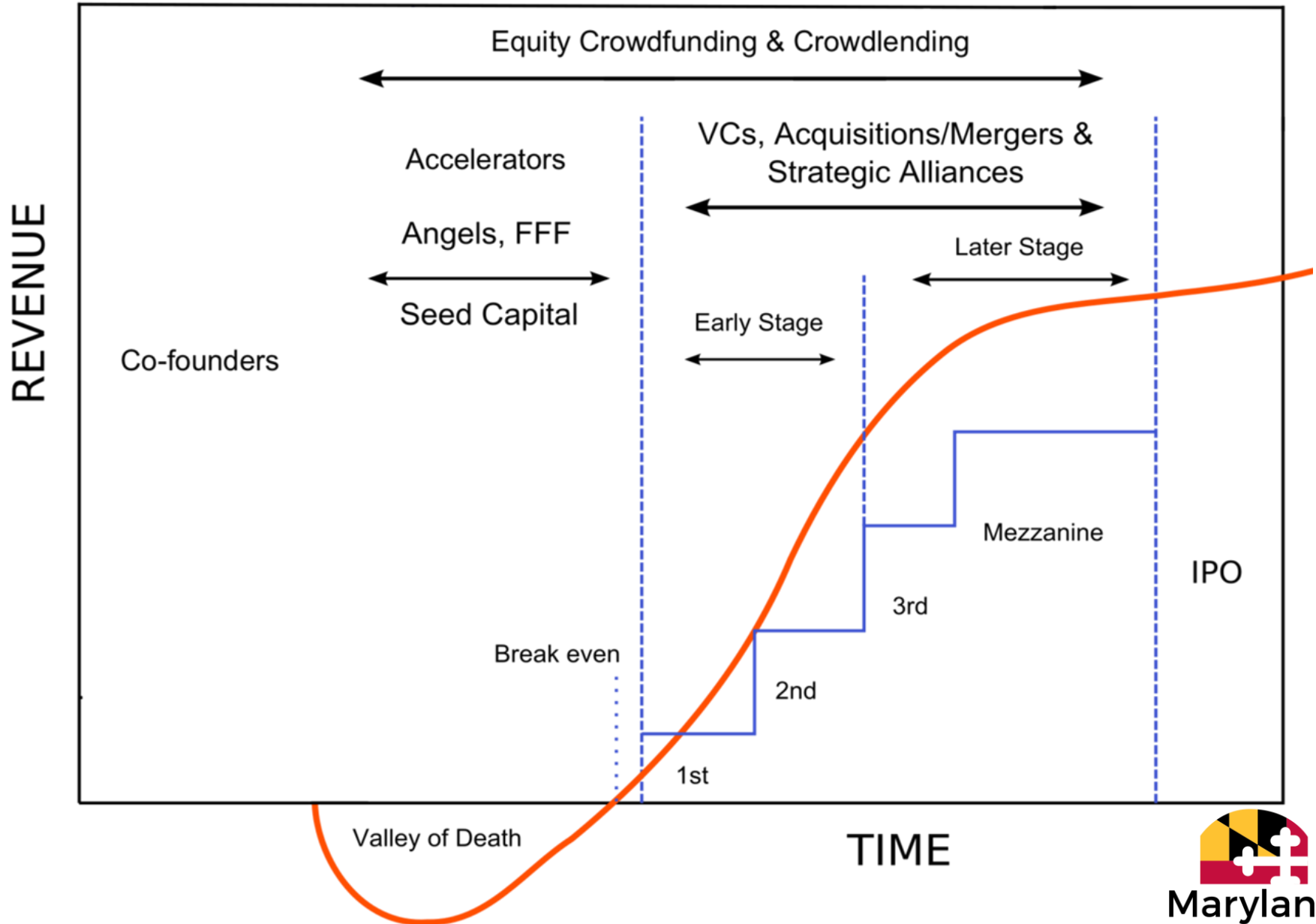


Traditional financing

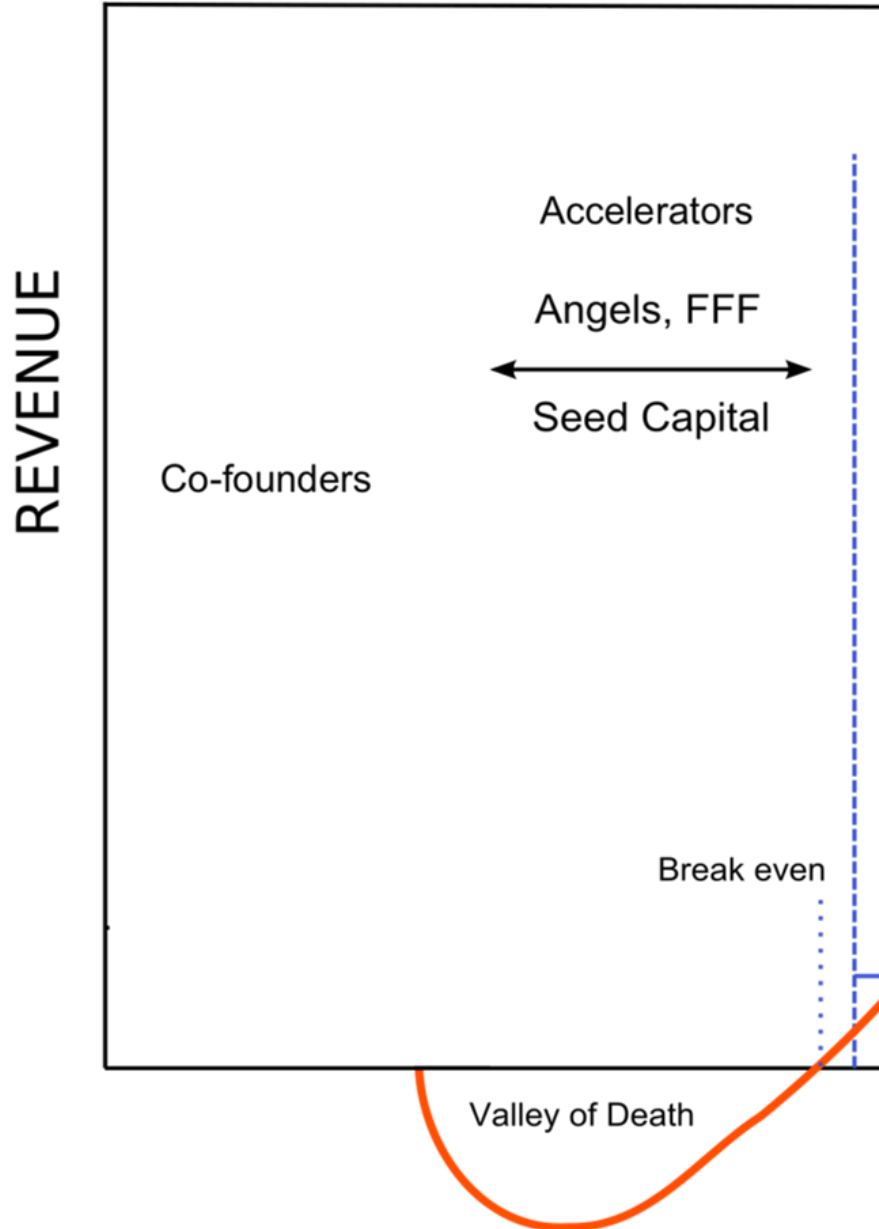


Angel Investors

Startup Funding



Seed Stage Funding



Small Business Innovation Research

- National Institutes of Health
- National Science Foundation
- Department of Defense
- National Institute of Science and Technology
- Department of Agriculture

Pitch Competitions

- Startup Grind: Columbia, Frederick, Baltimore
- Bioscience Day at University of Maryland
- Maryland Technology Council

Innovation Corps (I-Corps) Program

At NIH or NSF:

- Provides three-member project teams with access to instruction and mentoring
- Provides significantly refined commercialization plans and well-informed pivots in commercialization strategies

At Universities:

- UMD Intro to I-Corps Workshop: Kim Wallace at kkw03@umd.edu
- UMD FedTech Program: Ben Solomon at benjamin.solomon@rhsmith.umd.edu

TEDCO Seed Funding



www.tedcomd.com



Send your pitch deck to
SEED@TEDCO.MD



Stem Cell Research Fund



Discovery Grants: (\$345K / 24 months)

- Innovative groundbreaking ideas
- Little or no preliminary data

Validation Grants: (\$230K / 18 months)

- Technologies that have intellectual property filed
- Clear market need & Quantifiable milestones

Commercialization Grants: (\$300K / 12 months)

- Licensed technology or IP protection
- Clear commercial milestones & job creation and economic benefits

Clinical Grants: (\$750K / 24 months)

- Clinical trial site in Maryland
- Matching funds 1:1

Post-Doctoral Research Fellowships: (\$130K / 24 months)

- Research institutes or companies/bringing or keeping the best trainees in MD



Maryland Industrial Partnership (MIPS) Program

- MIPS promotes the development and commercialization of products and processes through industry/university research partnerships.
- The maximum MIPS awards:
 - **\$100,000 per year** for large and small companies
 - **\$90,000 per year** for start-up firms
- MIPS provides matching funds to help Maryland companies pay for the university research.
 - a. Research and Development:** Research may be in the broad areas of engineering, computer science, physical sciences and life sciences.
 - b. Education and Training:** Projects may also help a company plan and develop industrial training programs for its employees.



A. JAMES CLARK
SCHOOL OF ENGINEERING



Maryland Innovation Initiative

Technology Assessment Phase

Goal: Technology validation and market assessment

Duration: 9 months

Funding: up to \$115,000

Eligible universities:

- Johns Hopkins University
- University of Maryland College Park
- University of Maryland Baltimore County (UMBC)
- University of Maryland Baltimore
- Morgan State University



Maryland Innovation Initiative

Company Formation Phase

Goal: Commercial Launch

Duration: 9 months

Funding: up to \$150,000

Eligible University Start-ups:

- (i) that have licensed technologies from a Qualifying University within twelve (12) months of applying for a Program award
- (ii) that are located in Maryland



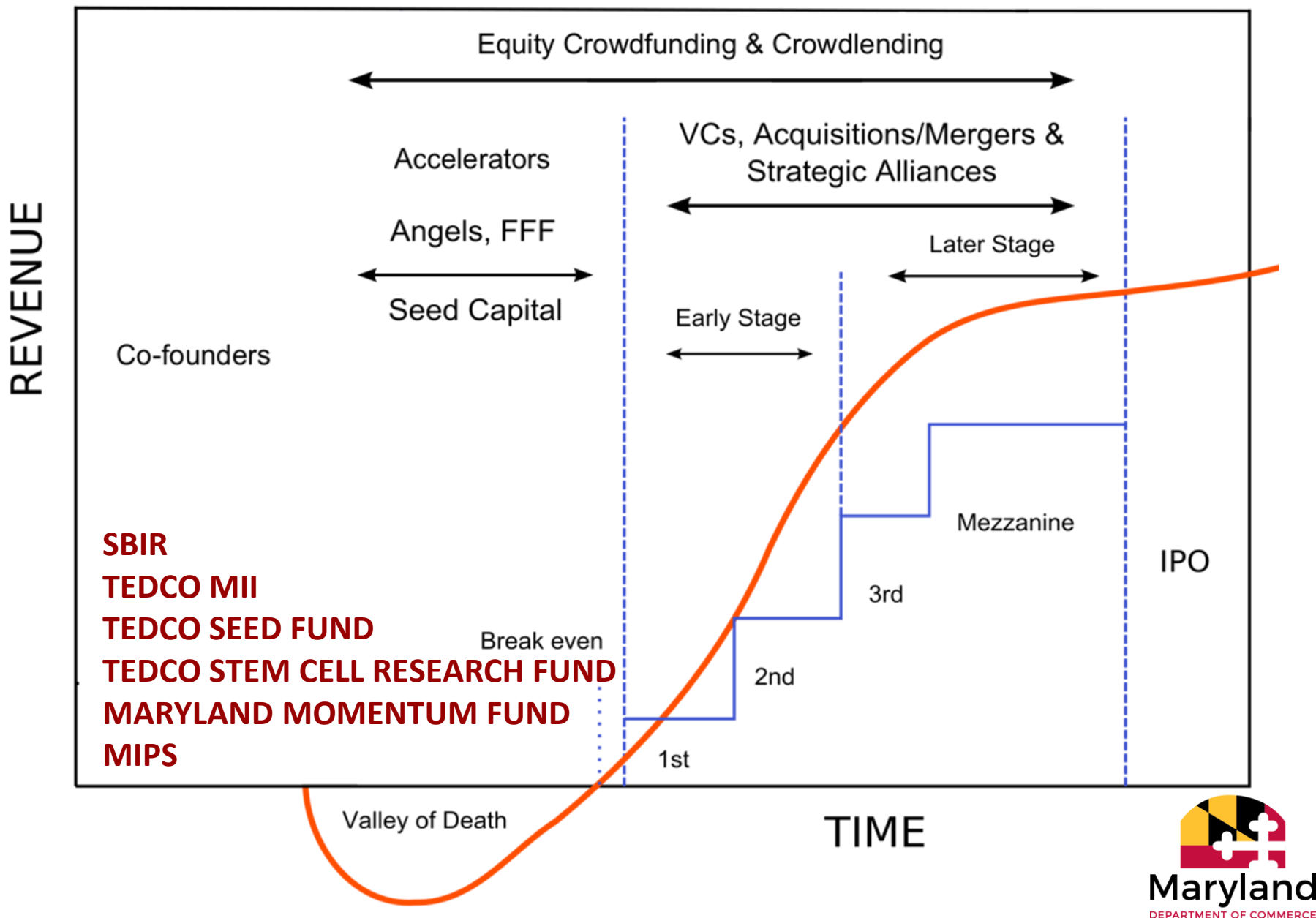
Maryland Momentum Fund

- Late seed-stage funding
- Award: \$150,000 to \$250,000, with a maximum investment of \$500,000. These investments will be equity purchases or notes that are convertible into equity.
- Funding requires a 1:1 match by a third-party investor
- Other requirements:
 - The IP is owned by a University System of Maryland member institution and licensed to the company;
 - A founder or an inventor in the company is a member of the USM faculty, a graduate of a USM institution, or a student at a USM institution; or
 - The company is located in a USM research park or incubator, or in a Regional Institution Strategic Enterprise (RISE) zone.



UNIVERSITY SYSTEM
of MARYLAND

Maryland Seed Funding

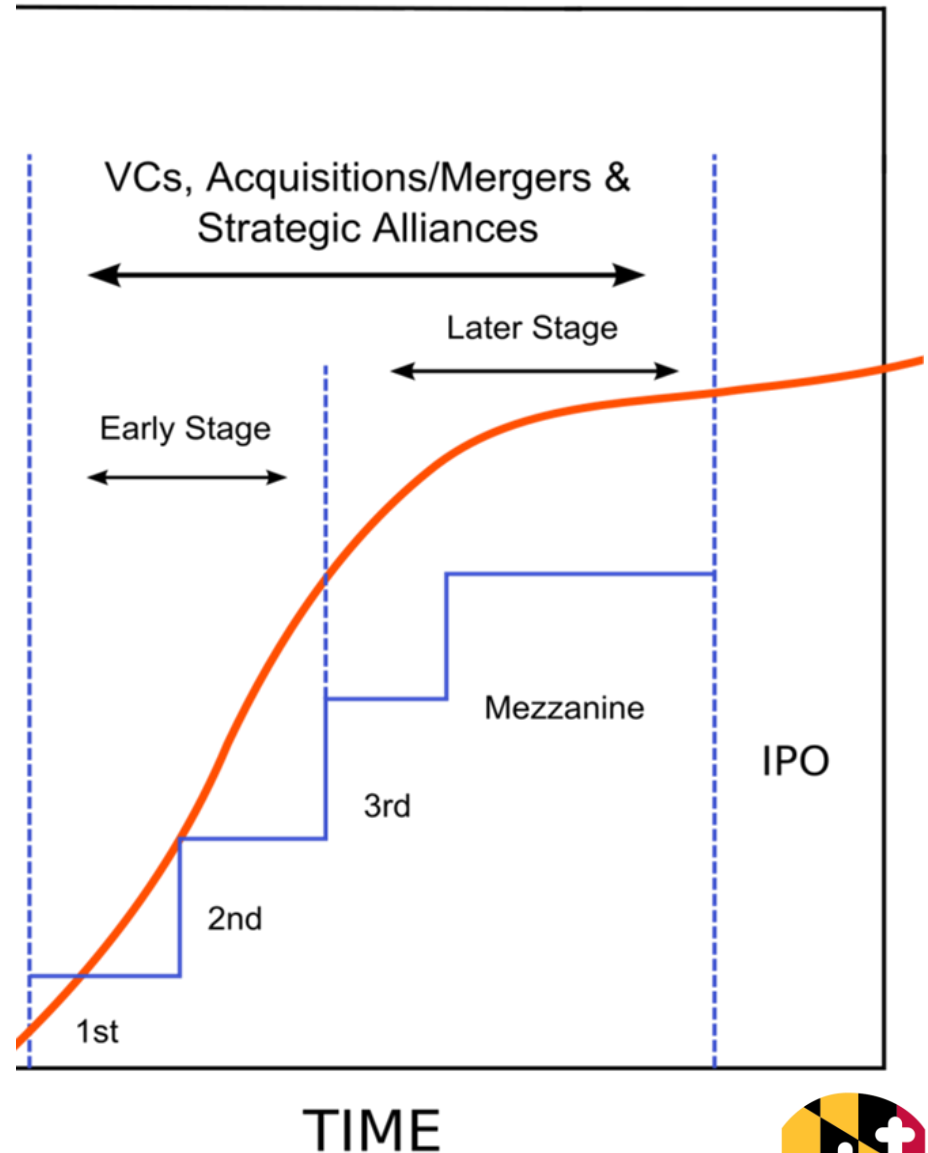


Maryland Early Stage Funding



MARYLAND
VENTURE FUND

- Sector agnostic
- Stage agnostic
- \$500K - \$1.5M investment



Biotechnology Investment Incentive Tax Credit



- Administered by the Maryland Department of Commerce
- Provides investor with refundable income tax credit of 50% on eligible investment
- Maryland's Biotechnology Investor Incentive Tax Credit (BIITC) has attracted **\$169 million** in total capital investment. (FY2007-FY2016)

VENTURE CAPITAL



www.tcp.vc



noblebioventures.com



SAAS VENTURES

saasventurecapital.com



www.epidarex.com



Toucan Capital

toucancapital.com

...AND MANY MORE

Not-For-Profits & Public-Private Partnerships



ABELL FOUNDATION

abell.org



biohealthinnovation.org

...AND MANY MORE

Network, Network, Network.



Any questions?

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